

Focal cemento-osseous dysplasia masquerading as a residual cyst

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Abstract

Focal cemento-osseous dysplasia (FCOD) is a benign fibroosseous condition that can be seen in dentulous and edentulous patients. It is an asymptomatic lesion and needs no treatment; however, follow-up is essential due to the possibility that it can progress to a condition called florid cemento-osseous dysplasia. We report a case of FCOD of mandible in a 25-year-old female. Clinically, the lesion resembled periapical pathosis of odontogenic origin. An attempt has been made to discuss the clinical and histopathologic features along with differential diagnosis of cemento-osseous dysplasia.

Keywords: Fibroosseous lesion, focal cemento-osseous dysplasia, periapical pathoses, residual cyst

Introduction

The high incidence and broad spectrum of conditions causing periapical radiolucencies make it imperative that all dental clinicians acquire a broad and comprehensive working knowledge. Some of these periapical radiolucencies present innocent anatomic variations whereas others are a result of benign or malignant conditions. Focal cemento-osseous dysplasia (FCOD) in the tooth-bearing areas of the jaws is an asymptomatic benign condition, belonging to the spectrum of fibroosseous lesions.^[1] The etiology and pathogenesis of FCOD is unknown, and this lesion is considered to be a reactive or a dysplastic process in the periapical tissues. Usually, it affects two or more mandibular anterior teeth, and the radiographic appearance varies depending on the state of development. In rare cases, the lesion may affect only one tooth and thus mimics an apical granuloma or a cyst.^[2,3] We present a case report of FCOD mimicking a residual cyst and stress on the necessity of judicial differential diagnosis at the site of previous extractions.

Case Report

A 25-year-old female patient reported to the Department

of Oral and Maxillofacial Surgery with a chief complaint of swelling and pain in the right mandibular region since 1 month. Intraoral examination revealed a firm well-defined swelling in the 46 region. Clinically, 46 was missing and 47, 48 were carious. The overlying mucosa was non-ulcerated and pink in color. Intraoral periapical radiograph revealed a radiolucent lesion in the 46 region approximately 9 mm in diameter with well-corticated borders [Figure 1]. On the basis of clinical and radiographic findings, the differential diagnosis of residual cyst, condensing osteitis, ossifying fibroma (intermediate stage) and idiopathic osteosclerosis was made.

A surgical excision of the periapical lesion was performed. On the basis of the intraoperative findings during the curettage, it was suspected that the lesion was not a periapical granuloma or cyst of endodontic origin because the small fragments were gritty and hemorrhagic. The curetted material was submitted for histopathological examination [Figure 2].

Histopathologic examination revealed proliferating fibrous connective tissue with moderate cellularity, rich vascularity and hemorrhage [Figure 3]. Trabeculae of woven bone and cementum-like material were interspersed throughout

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Figure 1: Intraoral periapical radiograph showing a well-corticated radiolucent lesion in the 46 region

the fibrous framework [Figure 4]. Fragments of cellular mesenchymal tissue composed of spindle-shaped fibroblasts and collagen fibers with numerous small blood vessels were observed. The fibrous tissue was devoid of any inflammatory component [Figure 5]. Based on the above features, a diagnosis of FCOD was made.

Discussion

FCOD was first suggested by Summerlin and Tomich, primarily according to the location of dysplastic areas of the bone (i.e., in the tooth-bearing areas of the posterior jaws and at extraction sites).^[1] The dysplastic lesions were identified as focal or periapical cement-osseous dysplasia on the basis of location only (i.e., posterior vs. anterior) because the two types of lesions share the same clinical, radiographic and histologic features. When the lesion is not associated with a tooth apex, the term “Focal cemento-osseous dysplasia” is used.

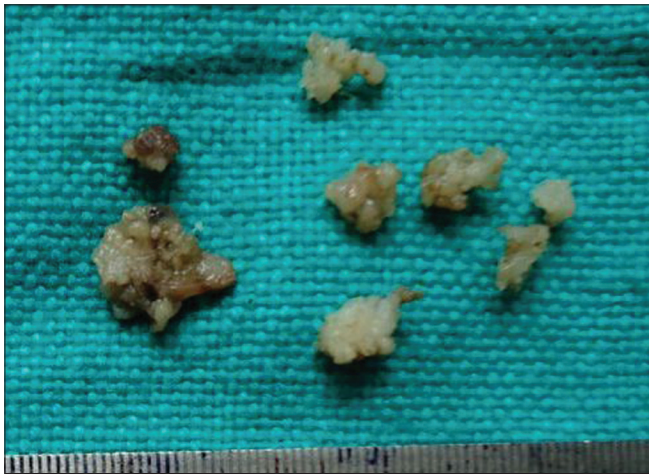


Figure 2: Cured material consisting of multiple small gritty and hemorrhagic fragments

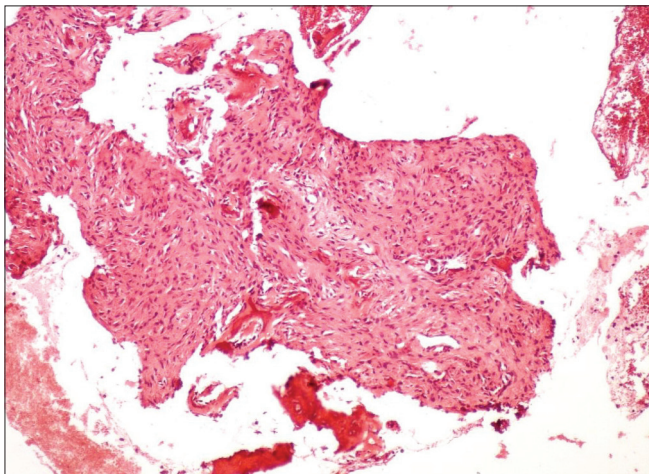


Figure 4: Bone trabeculae in a moderately cellular uninfamed fibrous stroma (Hematoxylin and Eosin stain, ×10)

FCOD is usually asymptomatic and occurs in the periapical area of teeth with vital pulps or in regions of extractions. Local jaw expansion and mild discomfort may be reported in about one-third of the patients. FCOD is seen predominantly in African-American black women, with a peak incidence in the fourth and fifth decades.^[2,3] The present case was in the third decade. The lesion was symptomatic and was detected in the 46 region, which was the site of a previous extraction.

FCOD is usually found during routine radiographic examination. It is seen most frequently in the anterior and in the premolar areas of the mandible. Seventy percent of the FCOD cases display an intimate relationship to the periapex. The remaining 21% is found in the sites of previous extraction and may mimic a residual cyst as in our case.^[4]

The lesions usually begin as cystic areas of radiolucency and tend to become progressively more opaque internally over time, but normally do not exhibit extension into

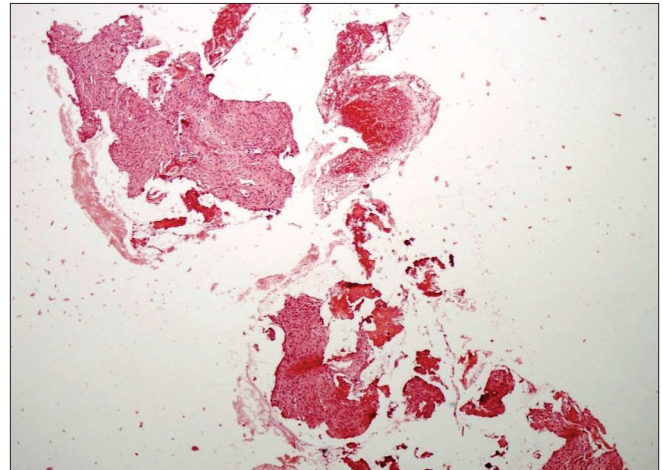


Figure 3: Fragments of cellular mesenchymal tissue with areas of hemorrhage (Hematoxylin and Eosin stain, ×4)

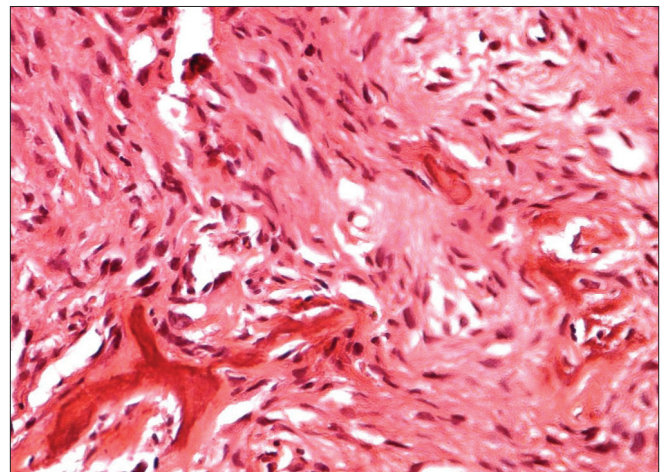


Figure 5: Higher power view depicting a cellular mesenchymal tissue composed of spindle-shaped fibroblasts with numerous small blood vessels (Hematoxylin and Eosin stain, ×40)

adjacent bone or cause cortical expansion.^[5,6] In our case, the radiograph showed features of intermediate-stage small opacities appearing within the radiolucent area with well corticated borders.

FCOD has been described as having three developmental stages, each with specific radiographic features. In the early or osteolytic stage, radiographs show a well-defined radiolucent area with loss of periodontal ligament and lamina dura. In the intermediate or cementoblastic stage, small opacities appear within the radiolucent area, which consequently displays a mixture of radiolucent and radioopaque architecture. This is because of the deposition of cementum-like droplets in the fibrous tissue. At this stage, the lesion could be histopathologically misdiagnosed as cemento-ossifying fibroma. The last mature, osteosclerotic and “inactive” stage is characterized by a definite radiopacity, present in the major part of the lesion.^[3]

Histopathologically, FCOD is a heterogenous lesion consisting of a benign fibrous stroma containing irregular trabeculae of mature and immature bone and cementum-like material.

The etiology of FCOD is unknown. The hypothesis of a periodontal ligament origin of this lesion seems to be the most widely accepted. The role of trauma, caries, periodontal disease, infection or systemic diseases as triggering factors is still to be elucidated. Zegarelli *et al.* suggested a hormonal imbalance as a likely causative factor.^[7] A few cases of autosomal pattern of inheritance of familial periapical cemental dysplasia have been reported.^[8]

The diagnosis of typical FCOD is usually based on clinical and radiological features. The differential diagnosis should consider the stage of development of the lesion and include periapical granuloma or cyst and chronic osteomyelitis in the osteolytic stage, whereas in the mixed and radioopaque stages, chronic sclerosing osteomyelitis, ossifying/cementifying fibroma, odontoma and osteoblastoma should be considered.^[2,9,10]

No treatment is required for FCOD and follow-up is required to confirm the diagnosis. Some authors have hinted on the possibility of transformation of FCOD into florid cemento-

osseous dysplasia and emphasized on the importance of recall visits.^[1]

Conclusion

Periapical pathoses presents as a wide spectrum of lesions that may mimic and masquerade each other. Solitary FCOD is usually found in the periapical region. The case presented is unusual because it was found at the site of the previous extraction as a residual cyst. It is imperative to judiciously differential diagnose FCOD, which may present a difficult diagnosis for the dental practitioner. This case highlights the necessity to make a careful differential diagnosis in doubtful cases.

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